

How Long Will It Be There?

Target Level:
Grade 7

SOLs:
Science: LS.1, LS.10,
LS.14

Materials Needed:

Summary

Students predict how long it takes specific items to decompose and then compare their predictions to the correct times.

Objectives

Students will understand the process of decomposition, the necessary requirements for biodegradation to occur, the role of decomposition/degradation in nature and what materials are likely to degrade. Understanding litter prevention and composting techniques as important waste management techniques is desired.



Preparation

1. Prepare a display board by gathering pictures of various items that can be seen as roadside litter, such as a glass bottle, leather shoe, magazine, aluminum can, styrofoam box, plastic bag, milk carton, plastic bottle, newspaper, or tire and attaching the pictures to the display board. Next to (or below) each picture attach a piece of the “fuzzy” part of a Velcro strip. Make signs that give the length of time it takes each item to decompose and attach the “hook” part of the Velcro to the back of these signs. Students can then attach the “time” cards to the picture they think it matches.

2. Make paper ballots by writing the names of the items you will be putting on your display board with a space next to it for the students to predict how long it takes for the item to decompose.

Procedure:

1. Have students predict how long it might take items to decompose. Have each student fill out a ballot and fold it in half and write their name on the outside. Collect these ballots to compare the students predictions with the correct times at the end of the activity.

2. Choose 2-3 students to gather the “ballots” and record the predictions for the decomposition time of each item. These student can be compiling this data while the teams are preparing their answers.

3 Choose 2 teams of 4 - 5 students that will take the time cards and attach them next to the picture of the item that takes that long to decompose. Team A will have 5 minutes to make their predictions. Answers will be recorded and saved. Team B will then have 5 minutes to make their predictions. Their answers will then be recorded.

4 Write the names of the items on the board or overhead and the answers from both teams. Compare the answers and have the class discuss each item and what causes it to take a specific length of time to decompose-- or how we know how long it takes.

5 Have students discuss how these items could have been littered and what they can do about it. Discuss what is biodegradable and what is the best disposal method for these.

6. Hand out the “ballots” from the beginning of the lesson and have the students rate their predictions and determine how many predictions were accurate-- compare this to the number of correct predictions by each team. Discuss how and why the team predictions differed from their individual predictions.

Extensions

This activity would easily lend itself to collecting pieces of the litter and doing research on decomposition, comparing the length of time it takes in the sunlight, buried in soil or buried under leaves and other natural debris.



Decomposition Rates

Apple Core: 1 - 6 weeks

Paper: 2 - 4 weeks

Cigarette Filter: 13 years

Aluminum Can: 200 - 500 years

Plastic: 500 years

Rubber Tire: No Known Disintegration

1 - 6 Weeks	2 - 4 Weeks
13 Years	200-500 Years
500 Years	Never

